

the character of the descendants of both conjugants. These two lines of offspring descended from a pair of conjugants are more alike, both in their rates of fission and in the length of their bodies. There is a correlation, as has been previously seen, in the body length of parents, owing to assortative mating. But the correlation between the offspring of parents that have mated is 48 per cent greater than that between the parents themselves, which shows inheritance in the offspring from both parents.

AMITOTIC DIVISION IN CILIATED CELLS

Jordan (Anat. Anzeig. XIII, 1913, p. 598) contributes to the study of the behavior of ciliated cells, a report of the epithelial cells in the epididymis of the white mouse. He finds that division here is exclusively amitotic. Not a single mitotic figure was seen; but all stages of direct nuclear division are found. The prevalence of amitotic division has been shown in the epididymis of other animals, in the ciliated cells of the trachea, and in the ciliated cells of the gills of the clam. Jordan believes that the loss of power of mitotic division in these ciliated cells is due to the fact that the centrosome, whose activity institutes indirect nuclear division, is used up in the formation of the basal granules from which cilia are developed. In a way the power of mitotic division is the price they pay for cilia.

SPERMATOGENESIS IN SILKWORMS

Yatsu (Annot. Zool. Japan., Vol. VIII., Pt. II., July, 1913) undertakes to find whether there are any chromosomal differences between the various races of silkworms that are correlated with the morphological differences. He studied in all some seventeen domestic varieties of *Bombyx*—Japanese, Corean, Chinese, Turkish and European. His results were negative; that is to say, he found no differences of shape, size or number in the chromosomes of the morphologically different races of domestic worms. The haploid number he finds to be 28; the unreduced number is therefore 56.

The wild silk worm, *Theophila mandriana*, however, has 27 as the haploid number. If therefore, as some writers think, the wild form is the ancestor of the domesticated races, the latter have

acquired two chromosomes (in the unreduced nucleus) in the course of domestication.

EDUCATION OF INFUSORIA IN INGESTION OF FOOD

Metelnikow (C. R. Soc. Biol., Paris, 1913, pp. 701-704) states that infusoria may be brought to use more selection in the taking of substances. By using substances only slightly injurious or even substances with no nutritive qualities, he found such substances would be taken indiscriminately at first; but after a period of hours or days they cease to take them in. Such substances, at first taken freely and later refused, were aluminium in emulsion, sudan red, phosphorus, sepia, and carmine. In some instances the presence of another substance would induce them to swallow particles which they had learned to refuse. For example, they would take a mixture of sepia and carmine when they refused carmine alone.

SPIROSTYLE IN SPERMATOOA

Champy (C. R. Soc. Biol., Paris, 1913, pp. 663-4) makes a comparative study and an interpretation of the spiral, rod-like body found in many spermatozoa. He suggests axostyle and spirostyle as its name. He finds it in several amphibians; it has also been described in some reptiles, birds and mammals. He traces the development in amphibian from a simple axial rod in the nuclei of the spermatids to a twisted spiral one in the early stages of sperm formation, and finally to its partial or total disappearance in mature sperm. Its twisting in development involves both the nucleus and the cytoplasm, and thus may give a definite torsion to the whole spermatozoan. The result in the motion of the sperm is to produce a spiral course such as we see in many of the protozoa.

NERVE FIBRILS IN DENTINE

Contrary to the usual interpretation, Mummery (Proc. Roy Soc., Ser. B., 1912, p. 79) holds that the dentine of the teeth is innervated clear to its outer edge by nerve fibrils from the pulp cavity. There is a plexus over the outer surface of the pulp, and from this the neurofibrils, usually two to each tubule, enter the